

Flight

A Journal devoted to the Interests, Practice, and Progress of
Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE AERO CLUB OF THE UNITED KINGDOM.

No. 17. Vol. I.]

APRIL 24TH, 1909.

[Registered at the G.P.O.
as a Newspaper.]

[Weekly. Price 1d.
Post Free, 1½d.]

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.

Telegraphic address: Truditur, London. Telephone: 1828 Gerrard.

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ON TEACHING THE YOUNG IDEA.

*"Youth is the only time
To think and to decide on a great course."*

So wrote Robert Browning; and the words came to mind in connection as well with the Aerial League's prizes for competitions in kite-flying among boys as with Mr. Patrick Alexander's work at Windsor in presenting the 'United Services' College there with a special laboratory for the study of aerodynamics, together with the principles of heavier-than-air machines and the teaching of aeronautics generally to the boys. During the winter some of the youths of the College have helped Mr. Alexander to make a full-scale double-decked machine, on which several of them have made glides of fifty and sixty yards each at a height of about twenty feet off the ground. This point is brought out because it shows that Mr. Alexander appreciates the essential matter in enlisting the sympathies of youth in any subject in which it is desired to instruct them in any really satisfactory sense of the term. The fault of our education in general to-day is that the very methods of it are mere conventions. Whether a boy is to be taught flying or Latin, mathematics or music, we take it as a matter of course that he must be made to follow the ways that have been traced from generation to generation, so that whatever they may have been in the beginning, certainly they are no longer attractive to the majority. Hence it is found necessary to employ what is called discipline, otherwise to use a series of regulations whereby

youths are compelled to study willy-nilly. There are already signs, however, that intelligence is not a quality utterly to seek among schoolmasters; for there are not a few among their ranks to-day who are beginning seriously to ponder the question: Why should not instruction be rendered attractive to the majority as well as to the minority of boys? Of course, there is absolutely no reason whatever except convention. Happily for our immediate purpose the science of human flight is an entirely new matter to place before the young idea. Therefore there is no occasion for rendering it impossibly unattractive to the majority by following wholly unnecessarily pedagogic methods. A boy may like language, but it will be a strange thing if, until he is eighteen or nineteen, he has a chance of learning at a public school anything but grammar, usually with the result that only compulsion has induced him to continue his studies, because his natural sense of logic has caused him to realise at an early stage that by any such tedious process it will be years before he could hope to make himself understood in France or Germany with his painfully acquired schoolroom equipment. If you want to interest a boy in a language put him on the shortest way to be able to jabber it. The grammar will look after itself and come along sufficiently in the fulness of time. Especially if you show that there is really some practical objective in pursuing the study. Similarly with history, we knock all the romance out of it in the teaching, and leave a string of colourless dates as a tax on the memory; whereas the dates are no more the real essence of the thing than the figures on the dial of a clock constitute, in themselves, time. The amazing popularity of the rubbishy so-called historical romantic novels should furnish educationalists with food for reflection. Their vogue proves conclusively the lamentable failure of our system of teaching history in schools. Because convention prevents men and women being sent into the world with a knowledge of the actualities of history, the natural craving of ill-instructed mankind for some concrete notion of the "great days done," causes them to accept in all good but ignorant faith the so-called historical romantic story.

These points have been dwelt on because, to those of us who are wrapped up in human flight, this teaching of the young idea is assuredly the most practical and quickest means of advancing the science. Boys from fourteen to eighteen years of age will be young men of from twenty to twenty-four years old six seasons hence. That time will be with us ere we can realise, for those who have a purpose or a hobby in life find the months or years pass overspeedily. In six years' time we shall be many stages nearer actually practical flying machines of many varieties, and what material shall we be relying on for our best and most original efforts? Assuredly

the young men who will then be between a score and four-and-twenty years of age. Therefore, we can scarcely attach too great importance to the teaching of the young idea as from now onwards.

*Young seaman, soldier, student, toiler at the plough,
Or loom, or forge, or mine, a kingly growth art thou!
Where'er thou art, though earthy oft and coarse,
Thou bearest with thee hidden springs of force.*

The youth of to-day will be the man in command a couple of decades hence. We may even go further. In a letter to which we referred last week, Mr. V. E. Johnson, head-master of the Streatham Boys' High School, speaks on the strength of twenty years' experience when he says: "I can bear witness to the ever-increasing influence of the schoolboy and schoolgirl on the parent, especially in the suburban life of large towns. To arouse the interest of the children is to arouse the interest of the parents at once. Win over the younger members to your side, and the elder ones are yours without further effort." Those words are worthy to be pondered. They are the very gist of the matter as regards spreading the movement among those hitherto untouched by it. You may talk war-scares *ad nauseam*, but to send round the hat, as it were, before some years have been spent in awakening, not dread of flying machines, but intelligent interest in them and their possibilities, is like trying to reap the fruit before you have sown the seed. Even the most enthusiastic among our ranks must be well aware that although human flight is a reality of to-day, it cannot become a commonplace until to-morrow. Therefore it is the men and women of

to-morrow whom we wish to see fully prepared for the grand movement that is merely dawning. Let us enlist youth on our side, and we can laugh at the rest, because the rising generation is the one which shapes the future and marks the course of any nation. And for the older among us whom enthusiasm moves to teach the young idea, let us remember that in practical human flight theory is really a minor matter. Practice is everything. Therefore one cannot sufficiently admire Mr. Patrick Alexander's astuteness, firstly, in having made his class assist him in the building of a large machine, and, secondly, in giving the boys a ride on it. One brief passage in mid-air means more in actually capturing their sympathies and awakening their intelligent interest than does all the expounding of theory in the world. Make your pupils physically appreciate the reality of riding the wind and you will never have to spur them to pursue their study of the science. Be practical first and theoretical afterwards. The fault of education in the past and even at the moment is that convention seems to have persuaded us that we must set to work the other way about with the fatal result that enthusiasm is quenched. Any boy who has floated on the air, or has helped his fellows to do so, will not need any urging to listen to every exposition of theory or practice that you may be able to make for him thereafter. Moreover, he will be able to understand what you are talking about and to remember it, for it will not be a task to him but a recreation. Train your boys along the lines of common sense, and they will ripen into the type described by Longfellow—

*He was a valiant youth, and his face, like the face of the morning,
Gladdened the earth with its light, and ripened thought into action.*

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THE GREAT POWERS AND AVIATION.

FROM a return issued by the War Office, giving the amounts spent on aviation for military purposes during last year by four of the great Powers, it is seen that Germany was by far the most prodigal, and expended nearly three times as much as France. It is a pity the figures are not a little more explicit, for it is not clear from them whether the expenditures on spherical balloons are included in any of them, and if so, what proportion. The full figures published are as follows:—

FRANCE.		£
Ordinary expenditure for upkeep of ballooning establishments, training of balloonists, and experiments ...		7,200
Extraordinary expenditure for new material and constructions ...		12,000
Upkeep of ballooning units ...		28,500
Total ...		47,700

GERMANY.

(a) From Public Funds:—		
Home Office vote for the Zeppelin airship ...		107,500
Expenditure on balloon battalion—pay, &c. ...		26,231*
Total ...		133,731

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Cantor Lectures on Aerial Flight.

ON Monday next, at 8 o'clock, Mr. F. W. Lanchester will deliver the first of a series of three Cantor lectures at the Royal Society of Arts on the subject of "Aerial Flight." This lecture will be devoted to the principles of dynamic support and the conditions generally in mechanical flight, the second will deal with principles of stability, and the third with the functions and uses of the flying machine. The above are, of course, in addi-

(b) By private subscription:—

Collected by the National Zeppelin Airship Fund... £ 265,000

AUSTRIA-HUNGARY.

Ordinary expenditure for cost and upkeep of the balloon establishment at Vienna, including the training of field balloon detachments ...	3,000
Extraordinary expenditure for providing balloon equipment and organising field balloon detachments ...	2,500†
Total ...	5,500

GREAT BRITAIN.

Army expenditure in 1908-9:—

On dirigible balloons ...	1,980
On aeroplanes ...	3,290
Total ...	5,270

* A third company was added during the year.

† This represents the annual instalment of a sum of £50,000 which was voted for this purpose.

✱ ✱

tion to the lecture on the "Dynamics of Flight," which Mr. Lanchester is giving before the Institution of Automobile Engineers on Wednesday evening next.

Point to Point Races, &c.

THE attention of our readers is directed to page 241, where among the official notices of the Aero Club will be found full particulars regarding the international point to point balloon race, which is to be held on May 22nd, starting from Hurlingham.

CURIOSITIES AT THE AERO SHOW.

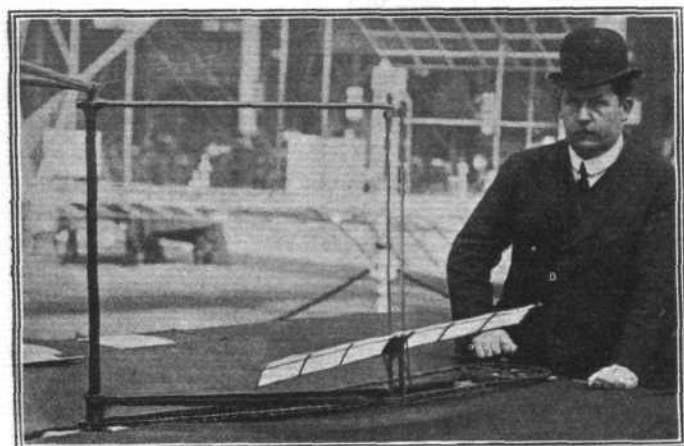
It is quite common to find at exhibitions, and the Aero Show at Olympia proved no exception to the rule, that the general public are caused to display a greater tem-



"Flight" Copyright Photo.

The smallest working model in the Show (made by Phillips and Walters) was a miniature Wright flyer, driven by an electric motor.

porary interest in what may be described as the curiosities than they do in those which should have a greater *prima*



"Flight" Copyright Photo.

Neale's Captive Aeroplane ascends in its vertical guides when the bracket is rotated by turning the handle.

facie claim upon their attention. If something can be made to work it is an especial attraction, as, for instance,

was the miniature model of a Wright flyer which spun dizzily round on the end of an electric cable suspended from the notice-board above one of the stands. It was the smallest working model in the Show, and Messrs.

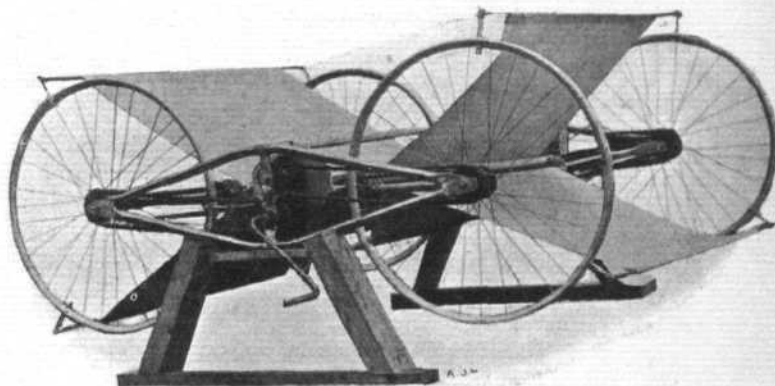
Evans box mag. 3



"Flight" Copyright Photo.

The Aiglo-Plan is a French-made kite combining the box-kite and ordinary kite systems.

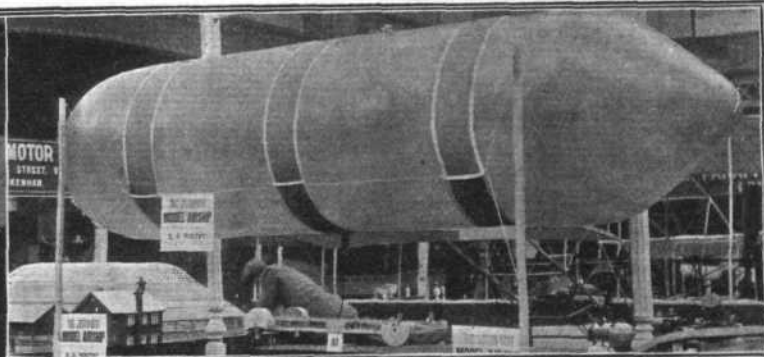
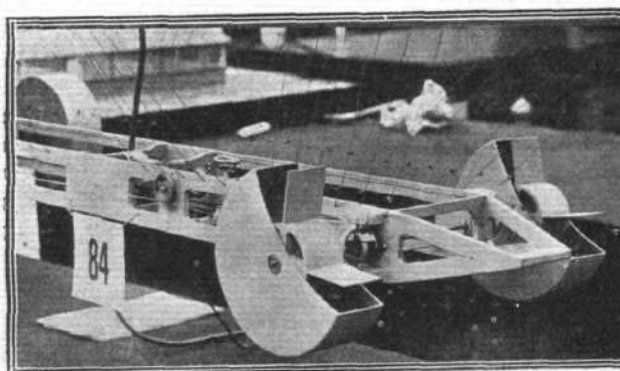
Phillips and Walters had ingeniously equipped it with a little electric motor which could be supplied with current through the flexible wiring attachment from a stationary four-volt battery.



"Flight" Copyright Photo.

Mark's Fan-Shutter is a device to obtain a direct lifting effect by rolling and unrolling a set of blinds.

Another device which, when it was set in motion, became the centre of an admiring crowd, was the Neale



"Flight" Copyright Photo.

On the Lester-Best Airship, seen above, the paddles are mounted on pivoted stub-axes for steering, and are partly enclosed in swivelling paddle-boxes by means of which the direction of motion can be changed without reversing the paddles. On the left these paddle-boxes are seen enlarged.

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captive aeroplane. This apparatus consisted of a simple plane mounted in vertical guides at the end of a rotating arm so that it could rise when set in motion. Inasmuch as it afforded an ocular demonstration of the lifting effect of the air on an inclined surface in motion, and of the

changes which are brought about by increasing and reducing the speed, it had a distinct educational value. Less convincing, perhaps, but more original, was a curious device called the Mark tan-shutter, con-

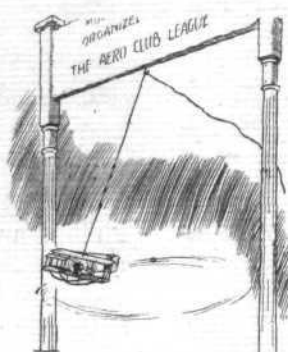


"Flight" Copyright Photo.

By attaching the apparatus shown above to a bicycle, the inventor of the "Cycloplane" seeks to facilitate pedalling.

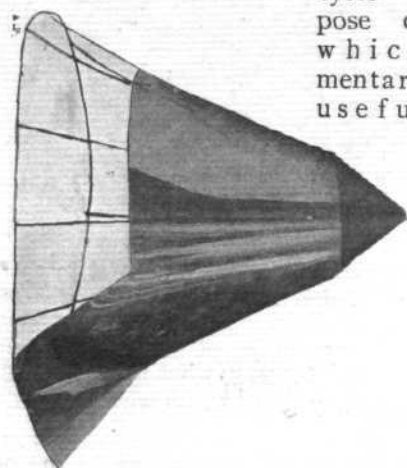
tion on account of the ingenious directness of its underlying idea, was the Lester-Best airship, which was equipped with a set of four paddle wheels in place of a propeller. Each paddle wheel was enclosed in a swivelling paddle-box, by altering the position of which the paddles could be made to propel the airship in either direction without changing their rotation. Ascent and descent were accomplished in the same manner, and steering was effected on the same principle as that of a motor car, the paddles being mounted on pivoted stub-axles. Also associated with airships was the conical aluminium nose which Mr. A. E. Taylor is going to fit to the gas-vessel of his model. The application of an aeroplane to an ordinary push-pedal bicycle is the ostensible purpose of the "Cycloplane," also serves the supplementary and possibly not less

cycle is pose of which mentary useful



"Flight" Copyright.

The Miniature Wright Flyer in flight.



"Flight" Copyright Photo.

The gas vessel of the Taylor Model Airship will be fitted with the conical aluminium nose shown above.

sisting of a set of roller blinds so arranged that as each blind unrolled it made a downward beat upon the air and thereby created a direct lift which was supposed to raise the machine in the air. Another model which possessed a certain fascina-

object of providing a permanent sunshade and umbrella over the rider: it might also be regarded as a place of refuge from the unexpected attacks of the fierce-looking French kite called the "Aiglo-plan," if such devices as these should ever become popular.



NEWS OF THE WEEK.

The Humphrey Aeroplane.

LAST week Mr. Jack Humphrey made a number of experiments with his new aeroplane on the waters of the Colne at Wyvenhoe. So that he may get accustomed to handling the machine, Mr. Humphrey has so ballasted the machine that it will not rise from the water, but in the course of its trials it attained a speed of about 10 knots. The high winds of the past few days have not been conducive to aeronautic experiments, but Mr. Humphrey intends to make a determined effort to win the *Daily Mail* one-mile prize.

M. Leon Delagrange a follower of Wright.

So effective was the result of an experience by M. Delagrange on a Wright flyer, guided by Count Lambert, that he has already arranged for one of these American machines. This week, at Cannes, M. Lambert was to initiate M. Delagrange further into the control of the Wright flyer. As soon as he has become proficient in the management of the machine, he will, in his turn, commence instructing future flyers, for he has been nominated as head pilot of the Société Ariel, who are selling the Wright machines in France.

By way of inaugurating the aerodrome which has been laid out by the town of Argentan, M. Delagrange has arranged to give some exhibition flights there on June 7th and 9th.

Aviation Supplants Mathematics.

A STRIKING instance of the way in which aviation is overshadowing everything else in France can be seen in the recent action of the Academy of Science. That body has in its gift two prizes of 10,000 francs each, known as the Petit d'Ormy prizes, which are awarded every two years for mathematics pure and applied and natural science. It has apparently been decided, however, that this year the sum of 20,000 francs should be expended in striking gold medals to be awarded to the most inventive and the most daring French aviators.

International Aeronautical Congress.

It has been decided by the "Commission Permanente Internationale d'Aeronautique" to hold the fourth Congress from September 18th to 24th, at Nancy, during the Exhibition being organised by the authorities of that city.

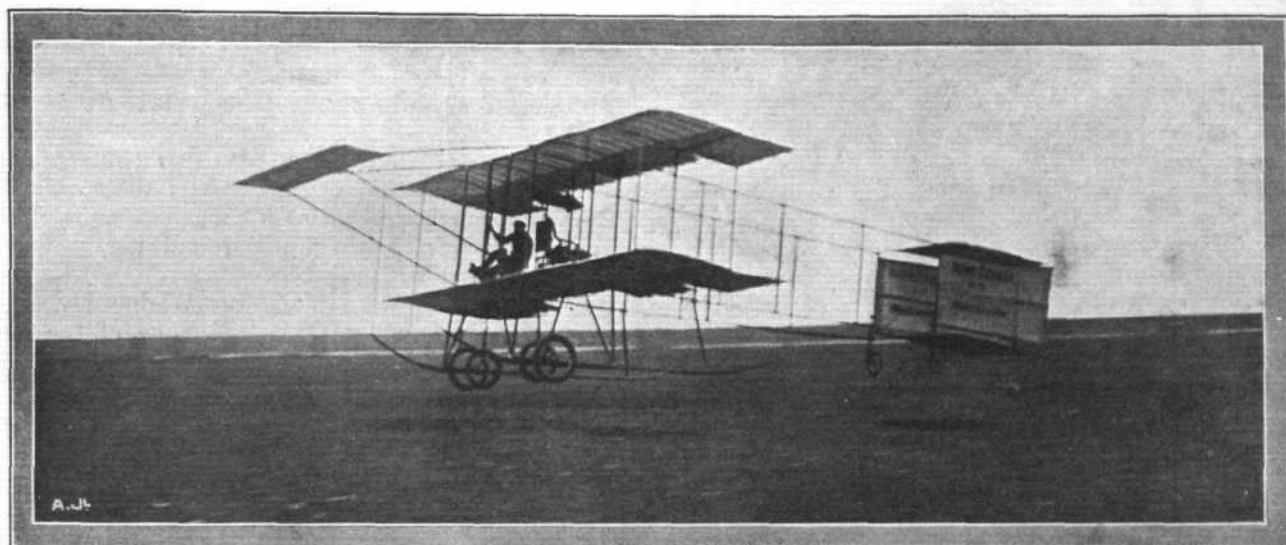
Henry Farman's "No. 3" Biplane.

At Chalons, Mr. Farman has been trying his new machine, and appears to be well satisfied with the results of several flights ranging from 300 to 1,200 metres. Both greater stability and speed have been obtained with the new model.

Henry Farman's biplane "No. 3" is fitted with a much more elaborate under-chassis than previous

may be, the machine can be righted and steered. In his latest experiments Farman has abandoned the vertical rudder which formerly occupied a position inside the tail.

Henry Farman has also abandoned the steering wheel in favour of the simple bicycle handle control seen in one of our photographs, and with the absence of any boat-like car on his present flyer, he is left quite free of any

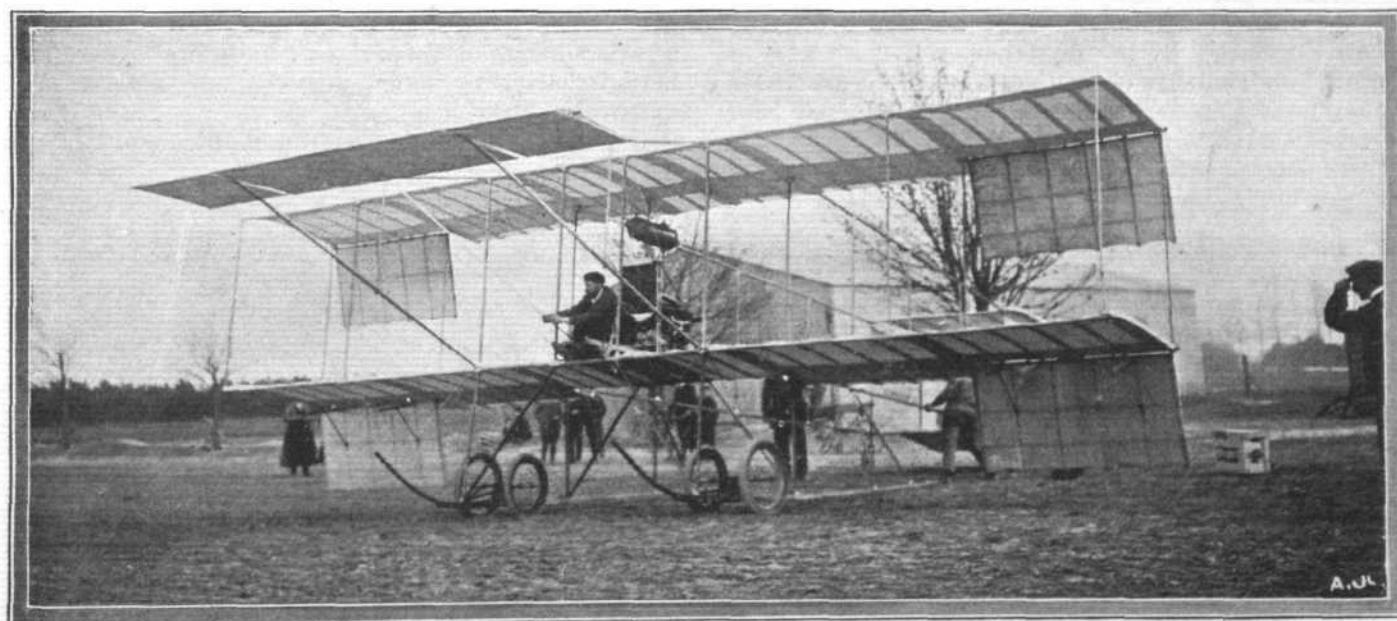


In the above picture Henry Farman is seen in flight on his biplane "No. 3." It will be noticed that the hinged flaps on the main planes have swung into their normal "in flight" position.

machines. Not only does it now possess a set of four wheels under the main plane, but it also includes a pair of skis which are mounted between each pair of wheels, as seen in our illustrations. Wheels and skis alike rise with the machine when in flight. The usual pair of small wheels are fitted to protect the tail. Close inspection of the photographs will show that the inner wheels of the

entanglement in the event of an accident. It has often been suggested that it is by no means wise for an aviator to sit in front of a horizontal steering column when learning to fly in view of the frequency with which bodily damage has been caused by this member in motor car accidents.

The flyer is fitted with a 50-h.p. Vivinus engine driving a two-bladed wooden propeller of 2.3 metres



Henry Farman's biplane "No. 3," on which the hinged flaps, hanging down, from the main planes are specially noticeable, as also the runners between the set of four wheels, the inner two of which are of smaller diameter than the two outer wheels. The span of the main planes is $10\frac{1}{2}$ metres, and the overall length of the machine is 13 metres.

Mr. Henry Farman's Old Aeroplane.

At Vienna, M. Legagneux was due this week to commence his flights with Mr. Farman's old machine, which he parted with to an Austrian syndicate.



Henry Farman in the aviator's seat of his "No. 3." Note the bicycle handle control which has supplanted the hitherto orthodox steering-wheel.

Wilbur Wright in Italy.

AFTER all, the initial flights of Wilbur Wright at Rome were carried through before the return of King Victor Emanuel. By way of recompense, the "King of the Air," on Thursday of last week, when he made his *début* on the Centocelle ground, was the admired hero of an enthusiastic gathering of the Italian aristocracy, Army officers, and leading sportsmen, including the

American Ambassador at Rome. For 10 mins. Wilbur Wright sped round the grounds at a height of about 200 feet, the 6,000 onlookers being enraptured at the sight. Again on the next day more flights were made, three in all, in the first of which, lasting 6½ mins., the aviator was accompanied by Naval Lieutenant Calderara, next, as passenger, came Lieutenant Savoja, of the Engineers, for 8 mins., Captain Castagneria afterwards taking a turn for 7 mins. All three of these officers have been chosen by the Government as pupils to Wilbur Wright, the first-named being himself an inventor of an aeroplane. Baron Sonnino, a prominent member of Parliament, was also accorded an experience as a passenger in the flyer.

On Monday Wilbur Wright also made three flights of about 10 mins. each. During one of them, Lieutenant Calderara, who accompanied him, had charge of the levers, and several times circled round the ground at a height of about 30 metres.

Several flights were made on Wednesday, and an ascent was made without the assistance of the derrick. Lieut. Calderara was the passenger during most of the flights, but in one, carried out at a height of 180 feet, Admiral Mirabello, the Minister of Marine, accompanied Wilbur Wright.

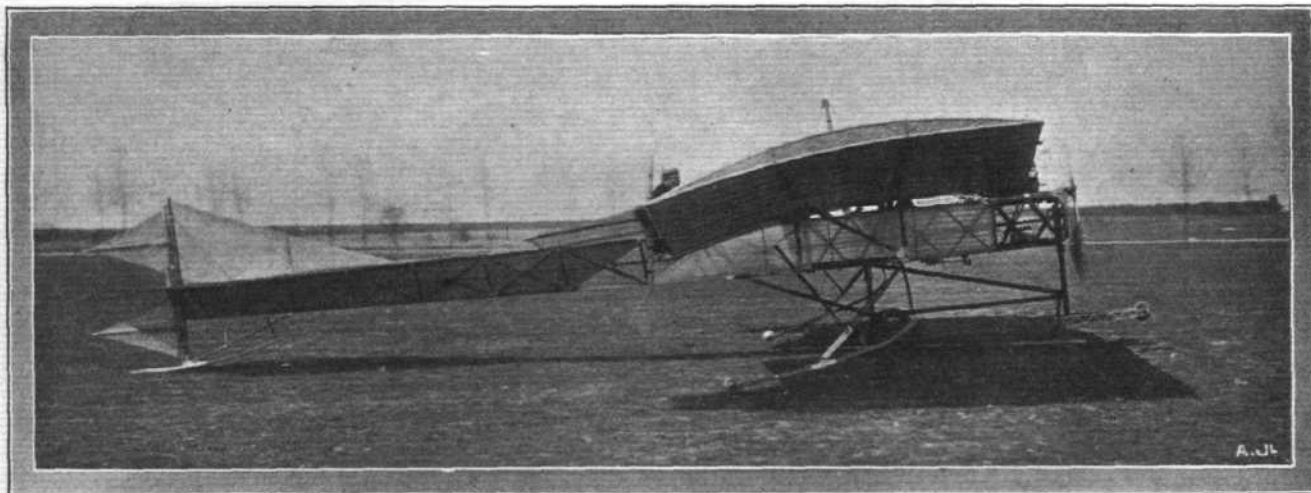
Negotiations are now in progress for the starting of a factory for the construction of Wright flyers in Italy.

The Antoinette Monoplanes.

THAT M. Rene Demanest has been able to do such remarkably good work on his Antoinette monoplane after only five lessons, demonstrates beyond all question the ease of manipulation of these "racers" of the air. After the fifth lesson, it will be remembered, M. Demanest secured the last of the 250 metre prizes of the Aero Club de France, and on the sixth occasion, a flight of 2 kiloms. at a height of 50 feet was accomplished.

On Monday Mr. Hubert Latham succeeded in making a splendid flight of 1,500 metres, including turning, at a height of about 15 metres, after which he came to earth quite easily.

Capt. Bugeat was also out on "Antoinette VI," and made several flights of 100 metres.



Captain Bugeat's new monoplane "Antoinette VI," with which he has successfully flown at Chalons, is equipped with an interesting under-chassis, which is very well illustrated by the above photograph. In order to keep the machine trimmed while at rest on the ground, a pair of steadying wheels are carried on an outrigger framework. There is also besides the main centre wheel a corresponding wheel jutting out in front, which serves to protect the tractor-screw in the event of the machine landing on the ground nose first.

Baron de Caters at Chalons.

ON Tuesday last Baron de Caters commenced experimenting with his Voisin-Delagrange aeroplane at Chalons, and succeeded in making three flights ranging from 1 kilom. to 1½ kiloms. in length, at a height of between 7 and 12 metres.

A New-comer at Chalons.

A NEW hangar is being erected at Chalons, between those housing the Farman and Voisin aeroplanes, for the reception of a biplane which has been built by M. Roger Sommer, of Mourzon (Ardennes). The machine will arrive about the 1st prox., and trials will probably commence on May 10th.

French Military Aeroplane.

THE aeroplane with which the French military authorities are experimenting at Chalais-Meudon does not seem to be very much more successful than the British Army flyer. It was given its first trial last week, and although it succeeded in raising itself, it proved to be unstable and fell heavily to the ground. Capt. Lucas Gerardville, erstwhile pupil of Wilbur Wright, was in charge of the machine, and he was slightly injured. The aeroplane is fitted with a gyroscopic governor which is intended to keep it stable.

More Progress at Issy.

CONTINUING his trials at Issy, Rougier is mastering his Voisin biplane with increasing success. He has had no difficulty in covering 700 to 800 metres in a straight line at a height of about 26 ft., and has, during this week, been executing some turns in mid-air. The Raoul Vendome aeroplane is also under test at Issy, and a couple of biplanes constructed by Regis Frères were to be tried on the plain this week.

Comisetti-Guignet Aeroplane.

A BIPLANE, the design of which follows very much upon the lines adopted by the French school, is being constructed at Geneva by MM. C. Comisetti and A. Guignet. It will be fitted with two propellers, made by MM. Pischof and Koechlin, driven by an Antionette motor of 130-h.p., which it is calculated will give the machine a speed of 60 kiloms. an hour. The total weight, including the aviators, will amount to 480 kilogs., and it is estimated that the machine will be ready for trial in August.

The Groos Flyer.

AT Pen-en-Toul, Lieutenant Groos on his aeroplane, during his initial experiments, had to retire owing to a fractured gear wheel.

More Prizes for "Débutants."

ALL the prizes for new aviators making a first flight of 250 metres having been awarded, the Aero Club of France have instituted three new prizes, each consisting of 200 francs and a medal. The regulations are the same as for the preceding awards, but the distance to be flown has been increased to 500 metres.

Douai Aviation Meeting.

ARRANGEMENTS are rapidly being made by the Douai section of the L.N.A. for the meeting it is organising. Three events are down on the programme so far: a speed event over a 2½ kilom. circuit; the grand prize for the longest distance flown in a closed circuit between July 4th and 18th; and a prize for the longest distance flown in a straight line between Arras

and Douai. The distance between these two towns is about 25 kiloms., the intervening country is absolutely flat, and there are no obstacles.

Italian Dirigibles.

A TRIAL trip of the Italian dirigible was to take place this week, to which considerable importance attaches. The airship was to attempt a 24 hours' voyage from Bracciano, where it has been constructed, passing over many of the chief cities of Italy, including Rome, Florence, Bologna, Venice, Milan, Turin, and Genoa. If success attends this journey, the future design of Italian dirigibles will be largely influenced thereby.

"Zeppelin I" Out of Date.

A REPORT from Berlin states that the German military authorities have come to the conclusion that the "Zeppelin I" is unsuitable for war purposes on account of her slow speed due to the small motors. She will, therefore, probably remain at Friedrichshafen for training purposes, and one of the new Zeppelins, with a 105-h.p. motor, will be sent to Metz.

The National "Zeppelin" Subscription.

COUNT ZEPPELIN has published in the *Schwäbische Merkur* a statement in regard to the £304,827 fund subscribed for him by the German nation after the disaster to his first airship. In his communication the Count says: "The extensive works, which are to render possible the rapid building of airships of the contemplated dimensions, are being prepared. Various enterprises which promise important stimulation to and development of airship construction, or the utilisation of aerial navigation, are receiving necessary support. Scientific researches and experiments of all kinds for testing what is being done or proposed throughout the world in this direction are being carried out in order that progressive improvements may be made. From what is being effected it is to be hoped that Germany will long remain at the head of the nations in airship construction and aerial navigation."

"Zodiac II."

THE "Zodiac II," which is the re-named de la Vaulx airship of 1,000 cubic metres capacity, belonging to the Société Zodiac, has been prepared for trial at Saint Cyr. The gas-vessel is inflated with hydrogen.

Another Dirigible for Russia.

RUSSIA is apparently determined to have an aerial navy. An order has just been placed in Paris for the construction of a new airship similar to the "Republique" at a cost of 300,000 francs.

Trans-Atlantic Airships.

MR. JOSEPH BRUCKER, who, as we announced in our issue of March 13th, is organising an expedition per dirigible from Cadiz to the West Indies, is progressing with the arrangements for the trip. A company called the Europe-America Aero Navigation Society has been incorporated under the law of New York State, and the route has been mapped out by Lieut. Hunt, of the New York Hydrographic Bureau. The original intention to start on July 25th has been abandoned, and the trip will probably not take place till next December, when by utilising the trade winds it is hoped that the crossing will be made in five days. Mr. Brucker states that the scheme has the approval of Count Zeppelin and that the airship to be used will be decided upon at the Frankfurt Exhibition next July.

Test of Aero Engines.

THE trials of aero engines, instituted by the A.C. de France, will take place as follows:—May 3rd-8th, Esnault-Pelterie engine; May 10th-15th, Gnome; May 17th-22nd, Esnault-Pelterie; May 24th-29th, Farcot; and May 31st-June 5th, Renault.

Prize Offered by Count Zeppelin.

COUNT ZEPPELIN has offered a prize of 10,000 marks to be awarded to the smallest dirigible which shall, during the time that the Frankfurt Exhibition is open, succeed in making five flights of not less than half an hour each and carrying two passengers.

Nancy Exhibition.

N. DE SALVERT, who has contracted with the organisers of the Aero Exhibition at Nancy to give a series of flights, during his experiments last week at Chalons, came to grief on his Voisin-Delagrange biplane. Fortunately, he only injured his foot slightly, whilst his machine was mainly damaged near the elevating planes.

An Aerial College at Friedrichshafen.

ONE of the works which is being energetically pushed forward by the German Aerial Navy League is the foundation of an aeronautic college at Friedrichshafen, close to Count Zeppelin's headquarters. It is hoped that the new college will be ready for the reception of students on October 1st. It will be in charge of Lieut.-General Nieber, and the students will undergo a three years' course. During the first the instruction will be purely theoretical; this will be followed by twelve months in the workshops; and the last year will be spent in dirigible ascents and experiments with aeroplanes.

A Society of Encouragement at Chartres.

UNDER the patronage of the civil and military authorities, a Society of Encouragement of Aviation has been founded at Chartres. The Society has secured a flying ground on the Beauce plains close to Chartres, on which they are erecting workshops and hangars for the housing of aeroplanes, &c.

Mr. Cortland Bishop in Europe.

THIS week Mr. Cortland Bishop, the President of the Aero Club of America, arrived in Paris on a visit partly connected with aeronautical questions of International import.

Volery née Aerodrome.

As our readers know, following an example set by Prof. Langley, a number of experimenters in the U.S.A. persist in designating their machines "aerodromes." It has therefore been necessary to find a new name for the flying grounds, and our American contemporary *Aeronautics* has brought the word "volery" into use.

FIRST WRIGHT FLYER

Now that the new aeroplanes have arrived at Pau, the machine on which Wilbur Wright has made all his wonderful flights has been packed up and sent to M. Lazarre Weiller at Paris. Under the contract with M. Weiller and the Cie. Générale de Navigation Aérienne,

American Army Views on Aeroplanes.

ACCORDING to a despatch from New York, the experts of the American Army are inclined to ridicule the idea of airships or aeroplanes dropping explosives on an enemy in time of war. The opinion held is that such machines will be chiefly useful for scouting purposes and for making observations.

Wellman Expedition.

MR. WELLMAN is apparently determined to make another attempt to reach the North Pole this year, at least he has announced that with nine members of his party he will arrive at Chistiansund at the beginning of next month, and he expects to start from Spitzbergen for the Pole at the commencement of July.

C. J. Glidden takes to Flight.

AFTER having diligently and for many years investigated practically every inhabited spot on the Globe by the aid of his trusty Napier car, that veteran American traveller, Mr. Chas. J. Glidden, is turning his attention most assiduously to flight. At the moment he is not actually contemplating mastering the art himself, although we should not be surprised to hear of him at the helm of a flyer before long. He has in the meantime, however, become President of the Aerial Navigation Company of America, which is to run airship passenger services in the States, and in order to keep in touch with his craft by the most approved methods, he has already had installed in his apartments at the Hotel Somerset in Boston a complete wireless telegraph apparatus capable of transmitting over a range of 1,000 miles and of receiving messages from distances of 3,000 miles. Mr. Glidden is himself an expert telegraph operator.

Firing at Balloons.

WITHIN the next few days some important experiments are to be carried out on Salisbury Plain by the 12th Howitzer Brigade of the Royal Field Artillery and the 2nd Balloon Company of the Royal Engineers. The latter will send up some captive balloons, and the former will fire shrapnel shell at them from new howitzers mounted on sunken platforms. The experiments will be carried out in the artillery danger-zone, which will be carefully guarded by mounted sentries.

French Cups for Sphericals.

FIVE new cups are offered for competition in 1909 by the Aero Club de France:—

1. Coupe Pilatre de Rozier. Value 400 frs. 600 c.m. category. Distance 200 kiloms.
2. Coupe d'Arlande. Value 500 frs. 1,200 c.m. category. Distance 300 kiloms.
3. Coupe Charles. Value 600 frs. 1,200 c.m. category. Distance 300 kiloms.
4. Coupe Robert. Value 1,000 frs. 1,600 c.m. and over. Distance 400 kiloms.
5. Coupe des Sociétés Affiliées à l'A.C.F. Open to members of affiliated clubs. Winner, the pilot of the balloon covering the longest distance in 1909, commencing April 1st.

FOR FRENCH NATION.

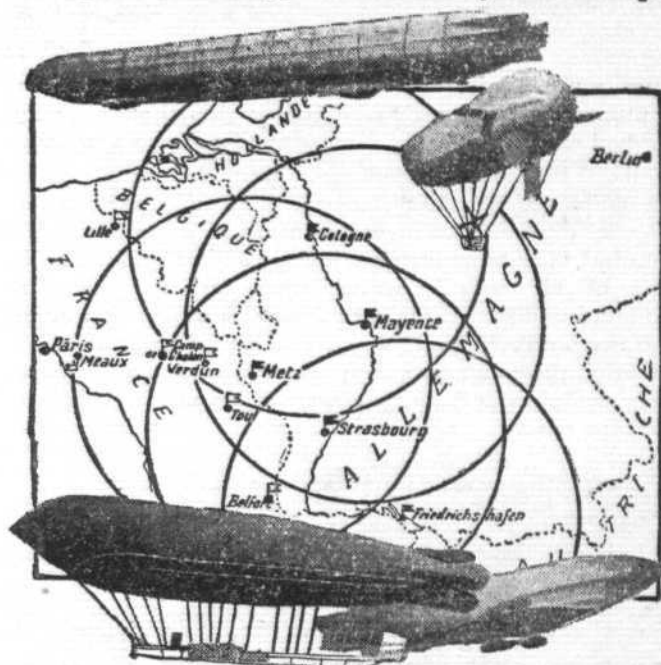
the machine became the absolute property of the former as soon as the new machines were delivered. It is to be presented by M. Weiller to the Conservatoire des Arts et Métiers, where it will find a resting place besides Aders' "Avion" and Cugnot's anticipation of the motor car of to-day.

"LE PÉRIL AÉRIEN."

COLONEL MASSY, the founder of the Aerial League of the British Empire, has for some time been hammering away at the British public, urging the immediate formation of a fleet of airships, with the very laudable object of placing England in the front of nations as regards the command of the air, as she is at present on the seas. If this end is of consequence to Great Britain, how much more acutely, at least in the early stages of airships, any weakness may prove disastrous to Continental nations, can easily be imagined. In France, a feeling of alarm has been rapidly growing for some time in view of the activity of the aeronautical section of the German Army and the builders of dirigibles in Germany. This has found expression last week in the columns of a French contemporary, where the accompanying graphic illustration of future possibilities is depicted. That there is a certain amount of truth in the alarm sounded can hardly be doubted, inasmuch as latest reports from Germany give particulars of the far-reaching scheme which is being considered for the establishment of a long chain of airship stations throughout that country. It is proposed to build suitable sheds for the harbouring of the Zeppelins now being built at the following centres as a commencement, viz., Friedrichshafen, Stuttgart, Nuremberg, Munich, Mannheim, Würzburg, Frankfurt-on-Main, Cologne, Düsseldorf, Elberfeld, Halle, Magdeburg, Dresden, Berlin, and Hamburg. These sheds are to be capable of housing all the different kinds of airships adopted by the German Army. Additional sheds will contain all the necessary apparatus—gas cylinders, electric motors, &c.—and quarters for permanent crews.

It is hardly, therefore, to be wondered at that the suggestion of our French contemporary is that with well-established airship stations at various strategic points, such as Metz, Frankfurt, Mainz, and Strassburg, a serious menace to French interests may be considered to have been initiated. Metz to Paris in six hours in a dirigible

is no mere fantastic fancy, it is likely to be an actuality in a very short space of time, if it has not already been accomplished in effect by the remarkable voyages and evolutions of the Zeppelin airships. The latest flight of over 13 hours of "Zeppelin I" is an object lesson to the



What a French contemporary designates "Le Péril Aérien" is well illustrated by the above picture in the same journal. In this attention is drawn to the great mobility of dirigibles under the organised establishment of military airship stations by Germany.

world to take into consideration seriously, and in time the part which is to be played in the future in controlling the navigation of the air, whether for commercial, peaceful, or war purposes.

WIRE GAUZE FOR AEROPLANE SURFACES—

A SUGGESTION.

A SUGGESTION of considerable interest, and, it may be of no little importance, has been sent to us by Mr. G. Crosland Taylor to the effect that suitably varnished wire gauze might form an admirable surface material for aeroplanes. It is a long time since Mr. Crosland Taylor conceived this idea, and indeed he communicated it to the International Congress on Aerial Navigation, which was held in Chicago in 1893. In his paper of that date he quotes several kinds of wire gauze, among them one made of aluminium wire, which he explains is very expensive and could not be woven in England, at that date, over 3 ft. wide. Wire of this description, it is stated, can be obtained .007 in. diameter, and the finished web weighs from $1\frac{1}{2}$ to 4 ozs. per sq. ft., according to the thickness and mesh. When varnished with linseed varnish containing a sicative, the pores are closed, and the surface sheds water for an indefinite period. Very fine phosphor bronze web such as is used for dynamo brushes can be obtained weighing about 4 ozs. per sq. ft., and the same material less closely woven so as to be proportionally lighter would possibly be suitable. Iron wire gauze weighing 3 ozs. per sq. ft. can be obtained

and could probably be woven in a suitable mesh at $1\frac{1}{2}$ ozs. per sq. ft. Aluminium gauze could probably be obtained as light as 0.6 of an ounce per sq. ft., which, when varnished, would not weigh more than $\frac{3}{4}$ of an ounce per sq. ft. With aluminium wire at 25s. per lb., a hand-woven web 3 ft. wide would cost about 2s. per ft. The varnish would cost about 15s. per gallon, and would add from 15 to 30 per cent. to the weight of the web itself.

In addition to wire web, Mr. Crosland Taylor in his paper to the Conference mentions other materials as being worth experimenting with, and makes the following remarks about them:—

Vulcanized Fibre .035 in. thick: a piece 6 ft. by 3 ft. 6 ins. weighs 5 lbs., or 0.238 lb. per sq. ft. When 0.28 in. thick, the weight would be reduced to 0.174 lb. per sq. ft. If of good quality, this material stands the weather well. It is tough and strong, can be moulded, and may be bent to shape in hot water. It will hold screws well, and will also take a thread.

Ebonite: A sheet of 18 standard wire gauge weighs 0.283 lb. per sq. ft. It is very useful for model work, as it can be bent or moulded in boiling water and keeps its shape well when cold.

Celluloid: This has the same qualities as ebonite in respect to moulding in hot water. It can be obtained in sheets $\frac{1}{16}$ of an inch thick, measuring 26 ins. by 20 ins., and costing 4s. 9d. per lb. In

course of time this material is liable to shrink and become brittle, although it is impervious to the wet during its life.

Brown Paper: Canvas-backed packing paper about 24 standard wire gauge, has a weight of $\frac{3}{8}$ of an oz. per sq. ft. The canvas is of the lightest description, but will not separate unless wet, and the material is very useful for experimental work as it does not easily tear.

Oiled Canvas, Linen, &c.: The weight runs from 1 $\frac{3}{8}$ ozs. to 2 $\frac{5}{8}$ oz. per sq. ft. The material is reliable in wet weather and high winds.

Wilkesden Canvas: Costs about 2s. per yard, and is very useful on account of its durability in bad weather.

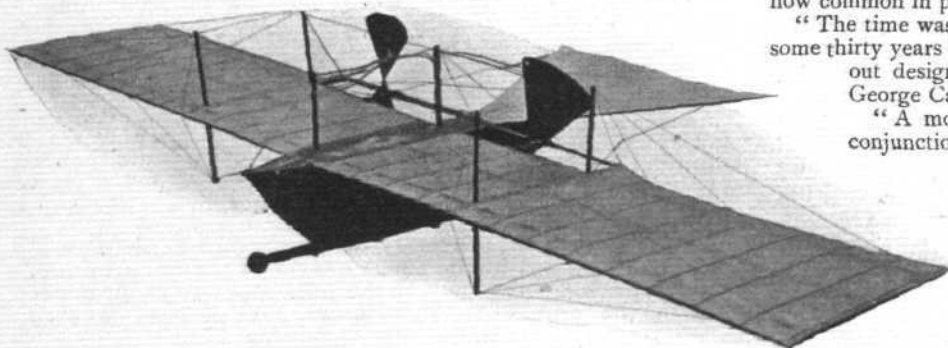
Proof Silk: Weighs $\frac{1}{34}$ of an oz. per sq. ft., and can be obtained in rolls about 5 ft. wide at about 2 $\frac{1}{2}$ d. per sq. ft.

Proof Cotton Sheet can also be obtained, but is heavier.

A CENTURY AGO.

SIR GEORGE CAYLEY ON FLIGHT IN 1809.

AMONG the models exhibited at Olympia was, as we mentioned in last week's issue, one which the Aero Club had had constructed as a copy of the Henson-Stringfellow model in the South Kensington Museum. Appended to the model was the following very interesting notice, which not only describes an inventor's ideas of a hundred years ago, but also pays fitting tribute to Sir George Cayley who, of all early scientists, made perhaps the most profound study of flight, thereby enrolling his name in this country honourably in the list of those who first extended their mental vision to include the conquest of the air within the boundaries of science:—



"Flight" Copyright Photo.

Over sixty years ago Henson and Stringfellow constructed the model monoplane, of which the above is a copy, belonging to the Aero Club. The original is in the South Kensington Museum.

"This year, 1909, is the centenary of the appearance in *Nicholson's Journal* and the *Philosophical Magazine* of some remarkably able articles on flight by an English scientist, Sir George Cayley. His insight into the problem of aviation was profound, but neither his own generation nor his successors realised his merit, for he was so much in advance of his time that it has needed an interval of a hundred years to demonstrate the truth of his assertions.

"France has not hesitated to do him justice, and M. Tatin, writing in the *Elements d'Aviation*, has said:—

"It would be difficult to construct a machine to-day which did not embody the majority of the features indicated by Cayley. His contributions to the theory of flight form a work of reference which it is well not to ignore."

"Much earlier, in 1874, another Frenchman, M. Penaud—himself well known as a pioneer in flight—paid a special visit to England on purpose to make research among Cayley's writings, and on his return to France he presented his discoveries in eulogistic terms before a meeting of the *Société Française de Navigation Aérienne*.

"Sir George Cayley seems to have appreciated almost every side of the problem of aerial navigation. He foresaw the difficulties associated with dirigible balloons on account of their enormous size, but he pointed out how they might be made to ascend and descend in the air without loss of ballast.

"In 1796 he constructed a model helicopter with a pair of lifting screws revolving in opposite directions, and expressed his conviction that it would be possible for a full-sized man-lifting machine to be

made on these lines. He anticipated the advent of aeroplanes, and, knowing that great lifting effect could be obtained from surfaces moving through the air at slight inclinations to the horizontal, he pointed out the importance of carrying out what are now known as 'lift and drift' experiments. He suggested the use of a tail as a means of obtaining automatic longitudinal stability in aeroplanes, and he further showed how the pivoting of that tail would enable it to be used as an elevator for ascent and descent. He deduced the advantage of wing flexion from his observations of bird flight, and he carried his investigations on the subject of propulsion into a close study of the theory of screws. Having invented a hot-air engine—and that, probably, the first of its kind—he foresaw possibilities in the use of gaseous mixtures, which have since been more than realised in the development of the petrol engine. On the question of steam he was even more precise, for he definitely suggested the use of a tubular boiler and surface condenser, both of which principles are now common in practice.

"The time was not then ripe for the realisation of his ideas, but some thirty years later, in 1843, an engineer named Henson drew out designs for a steam-driven monoplane based on Sir George Cayley's data.

"A model of Henson's machine, which he constructed in conjunction with Stringfellow, is on exhibition at the South Kensington Museum, and it is a copy of this model, on a smaller scale, which is on view above. The design was patented in 1842, and is thus officially described in the Museum:—

"The model consists of an extended surface or aeroplane of oiled silk, or canvas stretched upon a bamboo frame made rigid by trussing, both above and below. A car is attached to the under side of the aeroplane to contain the steam engine, passengers, &c. It has three wheels to run freely upon when it reaches earth. Two propellers, 3 ft. in diameter, are shown with their blades, set at 45 degs. They are operated by endless cords from the engine.

Behind these is a fan-shaped tail stretched upon a triangular frame capable of being opened out, closed, or moved up and down by means of cords and pulleys. By this latter arrangement ascent or descent was to be accomplished. A rudder for steering sideways is placed under the tail, and above the main aeroplane a sail (not shown) was to be stretched between two masts rising from the car, to assist in maintaining the course. When in motion the front edge of the machine was to be raised in order to obtain the required air support. To start the model it was proposed to allow it to run down an incline, e.g., the side of an hill, the propellers being first set in motion. The velocity gained in the descent was expected to sustain it in its further progress, the engine overcoming the head resistance when in full flight. Experiments were eventually made on the downs near Chard, and the night trials were abandoned, as the silk became saturated from a deposit of dew. After many day trials, down wide inclined rails, the model was found to be deficient in stable equilibrium for open-air experiments, little puffs of wind or ground currents being sufficient to destroy the balance. The actual machine was never constructed, but in 1847-8 F. Stringfellow built a model which is supposed to be the first flying machine to perform a successful flight.

"The dimensions of the model shown are 20 ft. from tip to tip of wings, by 3 $\frac{1}{2}$ ft. wide, giving 70 sq. ft. sustaining surface to the wings, and about 10 sq. ft. in the tail. Its weight is about 25 lbs. The actual machine was to weigh about 3,000 lbs., with 4,500 sq. ft. surface in the wings, and 1,500 sq. ft. in the tail."

BACK NUMBERS

OF "FLIGHT."

THE publishers have pleasure in announcing that they have secured a few of the early issues of *FLIGHT*, and any of our new readers who may wish to complete their sets may obtain the first sixteen numbers for 2s. post free, from the Publishers, 44, St. Martin's Lane, W.C.

AERO CLUB OF THE UNITED KINGDOM.

OFFICIAL NOTICES TO MEMBERS.

Fixtures for 1909.

April 30	...	English Michelin Cup. Competition opens.
May 22	...	International Balloon Race, Hurlingham Club.
June 23	...	Balloon Race, Hurlingham Club.
July 10	...	Balloon Race, Hurlingham Club.
July 17	...	Balloon Race, Hurlingham Club.
August 28	...	Gordon-Bennett Aviation Cup, Rheims.
October 10	...	Gordon-Bennett Balloon Race, Zurich.

Committee Meeting.

A meeting of the Committee was held on Tuesday, the 20th inst., at 166, Piccadilly, W., when there were present: Mr. Roger W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Vice-Admiral Sir Charles Campbell, K.C.M.G.; Mr. Martin Dale, Mr. John Dunville, Prof. A. K. Huntington, Mr. V. Ker-Seymer, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. C. F. Pollock, Mr. Stanley Spooner, H. E. Perrin (Sec.).

New Members.—The following new Members have been elected:—

Lt.-Col. C. F. Call, R.E.	J. E. Neale.
Kenneth R. Campbell, D.S.O.	Vice-Adml. George Neville, C.V.O.
G. F. Deverall-Saul.	Paul Rubens.
E. G. Edgar.	Noel Sampson.
F. R. Harford.	T. P. Searight.
Leo Jezzi.	A. A. Vaughan Williams, F.R.I.S.
Henry D. Lewis.	J. A. Wright.

Flying Ground at Shellbeach.

The estimates for the erection of two sheds have been passed by the Aero Club Committee, and the work ordered to be put in hand at once. The sheds will be ready for occupation in ten days' time. Arrangements are being made for the telephone to be fitted at the Club House, and also the sheds. The ground is being levelled and marked out under the supervision of Messrs. Short Bros., and will be completed in a week's time. Members wishing to make trial flights are requested to communicate with the Secretary.

Full particulars of the railway arrangements, and the most direct route for motors, will be announced next week.

The Aero Club is supporting the Royal Automobile Club in a Petition which has been lodged by the latter body against the South-Eastern and London, Chatham and Dover Railway Co.'s Bill now before the House of Lords. The Petition asks for a reduction of the existing toll in respect of motor cars, viz., 1s. 6d. each way for crossing the Swale Road Bridge, which is the sole connecting link between the Isle of Sheppey and the mainland, and over which any motorists proceeding to the flying ground at Shellbeach must necessarily pass. The Petition will be heard by a House of Lords' Committee on Tuesday, the 27th inst., and the Secretary of either the Royal Automobile Club or the Aero Club will be glad to hear from any motorists who have occasion to use the bridge.

Gift of Pictures to the Aero Club.

Dr. W. J. S. Lockyer and Mr. Frank H. Butler have kindly presented pictures for the Aero Club Reading Room.

Lecture by Mr. F. W. Lanchester.

Mr. F. W. Lanchester will deliver a lecture entitled "The Dynamics of Flight" at the Institution of Civil

Engineers, Great George Street, S.W., on Wednesday, the 28th inst., at 8 o'clock, before the members of the Incorporated Institute of Automobile Engineers. An invitation has been extended to the members of the Aero Club by the Institute of Automobile Engineers to attend the lecture. Members desiring tickets are requested to make application to the Secretary of the Aero Club.

Balloon Contests at Hurlingham.

Balloon contests will take place at Hurlingham on the 22nd May, 23rd June, 10th July, and 17th July, 1909. Members will be admitted free on presentation of their Aero Club membership card.

International Balloon Race.

(Point-to-Point Race, confined to England.)

An International Balloon Contest, under the rules of the F.A.I., will take place at the Hurlingham Club, Fulham, London, S.W., on Saturday, May 22nd, 1909, at 3.30 p.m.

The following prizes are offered:—

1st Prize	...	An objet d'art or £80.
2nd Prize	...	An objet d'art or £20.
3rd Prize	...	Silver-gilt medal.
4th Prize	...	Silver medal.

The following rules will govern the race:—

1. Open to Pilots of all Clubs recognised by the Federation Aeronautique Internationale, and to those competitors who, not being pilots, shall obtain special licence from their club for this race. No competitor must be accompanied by a professional.
2. The race is open to balloons included in the first five categories of F.A.I. rules:—
 - (1) Balloons of 600 c.m. or under must carry one person in all.
 - (2) Balloons from 601 c.m. to 900 c.m. must carry two persons in all.
 - (3) Balloons from 901 c.m. to 1,200 c.m. must carry three persons in all.
 - (4) Balloons from 1,201 c.m. to 1,600 c.m. must carry four persons in all.
 - (5) Balloons from 1,601 c.m. to 2,200 c.m. must carry five persons in all.
3. The winner to be the competitor who lands nearest to a point which will be designated by the Organising Committee of the Aero Club of the United Kingdom on the ground immediately prior to the start of the race.
4. The order of starting will be drawn by lot.
5. Competitors on descending must fill in a form, which will be supplied to them, and get it duly signed by two responsible persons in the district where the descent is made.
6. A competitor by entering thereby agrees to accept responsibility for damage done by his balloon or the occupants, and to indemnify the Aero Club of the United Kingdom and the Hurlingham Club in respect thereof.
7. Competing balloons must be delivered at the Hurlingham Club, Fulham, London, S.W., on or before 10 a.m., Friday, 21st May, 1909, and be ready for examination by the officials between the hours of 3 and 5.30 on the same day.
8. Competitors must provide their own ballast bags in sufficient number for the inflation of the balloons, together with a reasonable quantity of hose pipe and ground cloths.
9. All balloons must carry the flags of their club and country.
10. The decision of the Committee of the Aero Club of the United Kingdom in all matters of dispute, or as to the interpretation of these rules, shall be final.
11. Gas and ballast will be supplied free to the competitors.

Entries to be made to the Secretary of the Aero Club of the United Kingdom, 166, Piccadilly, London, W., on or before 12 noon, Wednesday, 12th May, 1909, and must be accompanied by the entrance fee of £10, half of which will be returned to the ascending competitors.

HAROLD E. PERRIN, Secretary.

The Aero Club of the United Kingdom,
166, Piccadilly, W.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

MODELS AT OLYMPIA.

To the Editor of FLIGHT.

SIR,—I should like to be allowed to make one or two corrections in your description of my model in the current issue, Model No. 5, page 224 (Show No. 88), and to take exception to some of your remarks concerning the models generally.

First. The planes are *not* arched. They are semi-dihedral, and carry narrow transverse planes with equal spaces between to let the spent air through. This enables me to travel "length on" in direct opposition to all "accepted theory." It stands to reason that a machine travelling "broadside on" is at least unmechanical and hard to control.

You say there is no "originality" shown in the models. Is there none in the principle, namely—letting the spent air through and so obtaining an equal lifting effort all the way along the plane no matter how long the plane? Is there no originality in Model No. 2, page 222, which is "length on" and dihedral, &c.? My model has been brought before Major Baden-Powell, amongst other experts, and he said that he would like to see a machine built on my principles.

Then again, your photo does not show the front triangular corner pieces, as they are in a downward position. By raising the two, the machine rises, by lowering them she comes down, and by raising one only she steers to left or right, as the case may be. Thus with two levers only you can control the whole machine for balance and steering, as the two functions are combined. Isn't this "original." Anyway, I have a provisional patent for it and the good opinion of Mr. Spencer, of Spencer Bros.; Col. Fullerton, of the Aeronautical Society; Prof. Emms, of Messrs. Emms and Halliday (my agents), &c.

I may say the model was only built for experimental purposes and was, quite unexpectedly to me, put in the show under the auspices of the Aero Club League. I am not a member of the League, as I am too poor, but Messrs. Emms and Halliday got it in, although they only had it the Tuesday before the opening day.

Second. The name is not Halliday. My name is E. H. Hare.

I will conclude by saying I have studied the subject for five years off and on and am a mechanic, and am quite aware what has been done by the "broadside on" men (who after all are only copiers of Wrights, to whom all honour is due), but my conclusion is that, of necessity, some way or other, the "length on" type will come, and after that the helicopter, or directly suspensional type.

Whoever heard of a fish, a railway train, a motor, a submarine, a steamer, or, in fact, anything in the nature of mechanical travelling, moving broadside on?

I am, Sir, yours faithfully,

E. H. HARE.

P.S.—Why don't those who talk so much about encouraging the science of aviation endow the inventor with money to build his machine? That is the surest way to achieve success, not by prizes for flight, which, in ninety-nine out of a hundred cases, it is impossible for the poor man to compete for, as he has not the wherewithal to build the machine to compete with. If I wanted to encourage any science I should endow the men who study it, and not offer prizes to be competed for. The human brain, after all, is the foundation of progress, and, therefore, why don't they encourage that? Wealthy Englishmen have lost their old-time financial pluck.

To the Editor of FLIGHT.

SIR,—I notice a short description of my models in FLIGHT, April 17th, which is slightly wanting in detail in some respects, and to which, if I may, I should like to add.

In the first place, the fore and aft planes are not in a straight line; both the central stem and wing bars are slightly curved, and in such a way that the rear plane has ceased to lift, and the front plane is still lifting, when the rear of the machine tends to lift above the horizontal line, thus tending to give fore and aft equilibrium. This effect is added to by a difference in the camber curvatures, the rear plane having a deeper camber; to this I may add the wing bars or spars are curved more than the central stem.

Turning to the arrangement of the position and proportion of planes, these have been proportioned with a definite object, the width of machine, depth of front plane, depth of back plane, and distance between the planes all being a definite number of units, and in exactly the same proportion as a man-carrier. I have found that this proportion conduces to a compact, light machine, and in conjunction with the dihedral angle attains the object for which I was working, viz.: the machine will travel in a straight bee line

across the wind or diagonally, in whichever direction started, without a rudder, a rudder only being useful in turning or running in curves.

Another point peculiar to my machine is that the propeller is above and in the angle contained by the planes, and is a definite number of units in diameter; from this it follows that the propeller diameter is fixed for every machine of whatever size. Its position also has a peculiar effect which I do not yet understand, giving an enormously greater lifting effect than when used in the rear or front. One of my models lifted as much as 125 lbs. per h.p., or 6½ lbs. for ⅓ h.p.

These models were not made for toys, but for competing in a model flying competition, which, unfortunately for me, did not take place.

I had 1,700 flights with one model without repairing or accident, sometimes in high winds which have made me stagger with my model.

This explanation will give some faint idea of my reasons for arrangement and construction, which were not apparent from the appearance of the models.

Yours very truly,

MONTFORD KAY.

To the Editor of FLIGHT.

SIR,—In your description of the model flyers at Olympia in the last issue of FLIGHT, I notice you have spelt my name Clarkson; this should be Clarson. I hope soon to be able to send you photographs of an aeroplane (which I am building at present), and from models of this machine I have obtained very satisfactory results, not in a room, but outside, with a fair wind.

Yours faithfully,

G. CLARSON.

Tamworth.

FLYING MACHINE CRITICISM.

To the Editor of FLIGHT.

SIR,—The hélicoptère type of flying machine referred to by Mr. Edward S. Jones has always had a great fascination for inventors, and at the present day it does not lack strong supporters.

The experiments of Mr. G. L. O. Davidson are some of the most elaborate that have been undertaken during the last decade. These experiments have had all the facilities that modern engineering practice can give, and it would be interesting to know if the large twin-screw machine built in America has ever actually flown any distance.

The elaboration of mechanical parts is one of the chief drawbacks to this type of machine, although at the Aeronautical Exhibition held in 1903 by the Aeronautical Institute and Club at the Alexandra Palace, there was shown a hélicoptère machine in which the mechanical detail was brought down to a minimum, by using two double-cylinder rotary petrol motors, attached directly to vertical shafts, carrying two screws placed one above the other.

There was a very disappointing exhibition of hélicoptère machines at the Olympia Show.

Regarding the experiments mentioned in my letter of April 3rd, and to which Mr. Jones refers, those on which I have been engaged for the last five years are of a confidential nature and still unfinished, and details cannot be published at present. But as an instance that capital has been available for experiments in the past, I may mention that a syndicate was formed a few years ago with a guarantee of £10,000 to perfect the designs of one of the most able exponents of aeronautical science of the latter part of the last century. About £1,200 was spent in experiments. The machine was of the flapping-wing type.

Sir Hiram Maxim's book, "Artificial and Natural Flight," should be carefully studied by all those interested in aeronautics, as it is one of the few books that contain real, practical, and reliable information.

Yours faithfully,

E. C. DWYER.



NEW COMPANIES REGISTERED.

Aerial League of the British Empire, 14, Staple Inn Buildings, Holborn, W.C.—Limited by guarantee.

Private Companies.

Aerometer, Ltd., 73, Moorgate Street, E.C.—Capital £5,500, in 15 shares. Mechanical engineers, manufacturers of and dealers in all kinds of machinery, weighing apparatus, &c.

Airships, Ltd., 89, Wigmore Street, W.—Capital £2,000, in £1 shares. Manufacturers and builders of and dealers in airships, aeroplanes, balloons, flying machines, &c.